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SEMINAR

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April 13, 2006
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

**ELICITING MULTICRITERIA VALUE JUDGMENTS FROM
DECISION-MAKERS: ESTIMATING AND MITIGATING BIASES**

ABSTRACT

Multicriteria decision-making (MCDM) is a popular decision analysis method in which priorities of decision-makers are elicited and used to rank decision alternatives when there are two or more performance criteria. Elicited value judgments are subject to several well known biases that can distort decisions. This seminar will summarize the purpose of MCDM methods, and then present methods for correcting two biases in prioritization. The Scale Compatibility Bias arises when decision-makers are asked to state how much of one criterion (the “currency”) they are willing to give up to gain a stated increase in another; the bias is that people tend to understate their willingness to sacrifice the currency, and this results in an overstatement of the currency criterion’s weight. Bayesian methods are used to estimate the degree of bias and the posterior distributions of “true” priorities. The Splitting Bias arises from allocating “weight” among branches in a value tree; although in theory the priorities should not depend on the tree structure, in fact they do. A quadratic programming approach is used to estimate the bias, along with the underlying “true” weights. The methods are evaluated using two groups of experts, one in fisheries management and the other in power system planning.

This work is drawn from my students’ theses: Richard Anderson (now on the faculty at Duke, who won the Decision Analysis Society 2004 Best Paper award for this work) and Sarah Jacobi (who is presently a Ph.D. student).